

NAVAL BASE PHILADELPHIA-PHILADELPHIA NAVAL SHIPYARD,
DRYDOCK No. 1
League Island
Philadelphia
Philadelphia County
Pennsylvania

HAER No. PA-387-A

HAER
PA
51-PHILA,
709A-

PHOTOGRAPHS

WRITTEN HISTORICAL AND DESCRIPTIVE DATA

Historic American Engineering Record
National Park Service
Department of the Interior
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HISTORIC AMERICAN ENGINEERING RECORD

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Location: Foot of First Street West, Philadelphia Naval Base - Philadelphia Naval Shipyard on League Island at the confluence of the Delaware and Schuylkill Rivers, in the City of Philadelphia, County of Philadelphia, Pennsylvania.

UTM Coordinates: Zone Easting Northing
18 484810 4415075
Quad: Philadelphia, PA. - N.J. 1:24000

Dates of Construction: 1889-1891; 1954-1956

Foundation/Construction: Timber Piles/Concrete

Engineers/Architects: 1891: Robert E. Peary, Civil Engineer, USN
1956: Harris-Dechant Associates, Philadelphia.

Builders: 1891: Yards and Docks Department, U.S. Navy Yard
1956: Francis A. Cusano and Sons, Inc., Philadelphia. Caisson (closure) fabricated by Todd Shipbuilding Corporation, Brooklyn.

Present Owner: Commander, Naval Base Philadelphia - Department of the Navy

Present Use: Currently unused but in good condition. The drydock is 448 feet long, 88 feet wide and 33 feet deep, too small for the ships that would normally utilize the repair facilities of the Philadelphia Naval Shipyard.

Significance: Constructed under the supervision of Robert E. Peary, explorer of the North Pole. Originally a wooden type Simpson structure, it was the Yard's first graving drydock and was frequently used in effecting repairs to Navy ships of that era.

The addition of four newer and larger drydocks relegated Drydock No. 1 to a comparatively minor role in aiding the repair and overhaul of Navy crafts. It was used for submarine repair during

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World War II. Condemned in 1951 when its rotting timbers prohibited further use, the drydock was renovated to serve as a shipyard facility for overhaul and repair on navy destroyers and smaller vessels. As rebuilt, the new drydock, is 448' long, has a width of 88', 6" and a depth of 33', 4".

Historian: Robert C. Stewart, July 1994

Project Information: This documentation project is part of the Historic American Engineering Record (HAER), a long range program to document historically significant engineering and industrial works in the United States. The HAER program is administered by the Historic American Buildings Survey/Historic American Engineering Record Division (HABS/HAER) of the National Park Service, U.S. Department of the Interior. The Naval Base Philadelphia - Philadelphia Naval Shipyard recording project was cosponsored during the summer of 1994 by HABS/HAER under the general direction of Dr. Robert J. Kapsch, Chief, and by Naval Base Philadelphia, under the command of Rear Admiral Louise C. Wilmot.

The field work, historical reports and photographs were prepared under the direction of project leader Dean Herrin, HAER Historian and Craig Strong, HAER Architect. The recording team consisted of Robert C. Stewart, Historical Archaeologist, West Suffield, CT. The historical section of the report was produced by John Bacon, Philadelphia Maritime Museum and Robert C. Stewart. Jet Lowe, HAER, was responsible for formal photography. The interpretive drawings were delineated by Doug Anderson.

Others who contributed their time, advice, documents and help were: Jane Allen (Philadelphia Maritime Museum), Dan Cashin (Chief, Rigger Apprentice Training), Alfred Cavallero (Manager Design Branch-Public Works Engineering), Rich Chlan (Public Affairs Officer-PNSY), Ed Delany (Fire Administration), Ralph Edelman (Quality Assurance), John Fedak (coppersmith), Robert Gorgone (Deputy Business and Strategic Planning Officer-PNSY), John Hilliard (upholsterer), Ed Jones (Boilermakers), Frank Matusik (Foreman - Lofting), Frank Mellert (Architect - Public Works Engineering), Rosalie Moschella Pinto (Tacker - retired, 26

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shop), Paul Niessner (Equipment Specialist - Cranes), Ed Ochmanowicz (Superintendent 31 Shop - Inside Machining), Steve Pandur (Leadingman - Fabric Workers - Sail Loft), Elaine Pelagruto (Beacon Editor), Tom Pierson (Loftsman), Cece Saunders (Historical Perspectives), Richard Scardino (Leadingman -11 shop - ship fitting), Martin Sheeron (Superintendent - Boilermakers), Commander Walter T. Talunas, USNR (Human Resources Transition Coordinator).

For additional information, see the following HAER documentation:

HAER No. PA-387	NAVAL BASE PHILADELPHIA - PHILADELPHIA NAVAL SHIPYARD (Overview, includes bibliography)
HAER No. PA-387-B	NBP-PNSY, DRYDOCK No. 2
HAER No. PA-387-C	NBP-PNSY, DRYDOCK No. 3
HAER No. PA-387-D	NBP-PNSY, DRYDOCK No. 4
HAER No. PA-387-E	NBP-PNSY, DRYDOCK No. 5
HAER No. PA-387-F	NBP-PNSY, 350-TON HAMMERHEAD CRANE
HAER No. PA-387-G	NBP-PNSY, 3,000-POUND CRANE
HAER No. PA-387-H	NBP-PNSY, MANAGEMENT ENGINEERING (Bldg. No. 4)
HAER No. PA-387-I	NBP-PNSY, SUPPLY DEPT. STOREHOUSE (Bldg. No. 5)
HAER No. PA-387-J	NBP-PNSY, COMMANDER'S OFFICE-NAVAL BASE (Bldg. No. 6)
HAER No. PA-387-K	NBP-PNSY, STEEL STOREHOUSE (Bldg. No. 8)
HAER No. PA-387-L	NBP-PNSY, CARPENTRY SHOP (Bldg. No. 14)
HAER No. PA-387-M	NBP-PNSY, MACHINE SHOPS (Bldgs. No. 16 & 18)
HAER No. PA-387-N	NBP-PNSY, MACHINE SHOPS (Bldgs. No. 17 & 19)
HAER No. PA-387-O	NBP-PNSY, FOUNDRY/PROPELLER SHOP (Bldg. No. 20)
HAER No. PA-387-P	NBP-PNSY, STRUCTURAL SHOP (Bldg. No. 57)
HAER No. PA-387-Q	NBP-PNSY, AIRCRAFT STOREHOUSE (Bldg. No. 76)
HAER No. PA-387-R	NBP-PNSY, AIRCRAFT ASSEMBLY SHOP PLANT No. 2 (Bldg. No. 77H)
HAER No. PA-387-S	NBP-PNSY, STRUCTURAL ASSEMBLY SHOP (Bldg. No. 541)
HAER No. PA-387-T	NBP-PNSY, PIPE COPPERSMITH SHOP (Bldg. No. 543)
HAER No. PA-387-U	NBP-PNSY, MATERIAL ASSEMBLY SHOP (Bldg. No. 592)
HAER No. PA-387-V	NBP-PNSY, MAIN SUPPLY WAREHOUSE (Bldg. No. 624)
HAER No. PA-387-W	NBP-PNSY, RESERVE BASIN AND MARINE RAILWAY

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DRYDOCK No. 1

Drydocks are facilities where ships can be built, repaired or painted in a water-free work area. They can be visualized as large box-like structures surrounded by water-saturated soils on three sides and open to a waterway on the fourth. They present unique construction problems, since digging a hole at tidewater, 70' below the surface, 1,000' long and 150' wide, is a hazardous proposition.

Hydraulic forces exert upward pressure on drydocks and sometimes cause them to "float" on the muddy earth where they are normally built. To withstand these forces they are anchored down with steel or timber piling. Drydocks 1, 2, 4 and 5 at League Island are secured down by timber piles driven 50 feet or more into stable, deep soil layers. The piles have a flared cap which is encapsulated within the concrete floor of the drydock.

The Naval Appropriation Act of September 7, 1888 made provision for the construction of a timber drydock at the League Island Yard. The J. E. Simpson Company was awarded the contract on February 18, 1889. The project was completed on March 18, 1891 and cost \$550,000. The contract also required construction of a pump house and a complete pumping plant for the dock.

The pumping plant had two forty-two-inch centrifugal pumps, two 28" x 24" vertical steam engines, one centrifugal drainage pump with a vertical steam engine and a vertical steel boiler for the drainage pump. Three Scotch boilers, 13' in diameter by 11' long furnished steam to operate the main pumps.

In 1889 and 1900 a new concrete coping was placed around the dock at a cost of \$92,000. At the same time a twenty foot gauge locomotive crane track was installed along the side of the dock at a cost of \$19,000. In 1901 a 40-ton locomotive crane was provided by the American Hoist and Derrick Company at a cost of \$44,580. In 1910, the three Scotch boilers were judged unsafe. A five-inch steam line was installed between the boilers in building 13 and the pumping station to operate the pumps.

Dimensions of the original Drydock No. 1:

Length of coping from head to outer sill:	500'
Length of floor from head to outer sill:	459' 10"
Width of entrance at coping:	89' 11"
Width at coping in body of dock:	133'
Width on floor in body of dock:	50'
Depth over sill at mean high water:	25' 5"

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In theory the largest ship that could be docked is one 460' long, 65' in the beam and drawing 23', 9". The dock could be pumped dry in 1 hour and 10 minutes and filled in 1 hour and 15 minutes.¹

In 1951 the drydock was condemned as unsafe. Management decided to replace the rotting timber structure with concrete and stone. After renovation at a cost of \$3,663,500, the facility was returned to service on March 9, 1956. It was used as a conversion station for smaller vessels. The first vessel to use the rebuilt dock was the USS Camp (DER-251) which was converted into a destroyer escort radar picket ship.²

For a list of related sources see the bibliography at the end of the written report in HAER No. PA-387, Naval Base Philadelphia - Philadelphia Naval Shipyard.

¹ A. R. Ritter "A Brief History of the Philadelphia Navy Yard from its Inception to December 31, 1920," Beacon archives (PNSY newspaper) (1921): chapter 6, 2.

² Philadelphia Naval Shipyard - Beacon Vol 15-No. 17 (9 March 1956).